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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,024	03/16/2005	Raymond Guyomarc'h	0501-1130	2740
466 7590 05/28/2008 YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			EXAMINER RAHIM, AZIM	
			ART UNIT 3744	PAPER NUMBER
			MAIL DATE 05/28/2008	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/528,024

**Applicant(s)**

GUYOMARC'H, RAYMOND

**Examiner**

AZIM RAHIM

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Remarks*

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 3-8 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arthur et al. (US 5,115,184).

Regarding claim 1 and 13, Arthur et al. teach a system and method for cooling an inner wall (top of wall 39) of a thermal system comprising a double wall (top of wall 39 and bottom of wall 39), said inner wall being subjected to temperatures greater than or equal to its physical capacity (col. 1 lines 18-24), said system comprising a network of tubes (spray nozzles 33) independent of said thermal system to be cooled (spray nozzles 33 are disposed above furnace roof bottom wall 39 interconnected with tubes as illustrated in fig. 1), said tubes containing cooling water (col. 5 lines 35-38) circulating under pressure (col. 5 lines 38-42, the spraying of the cooling fluid illustrates that the coolant is under pressure) and being equipped with nozzles (ends of spray heads 34 where the water exits) provided for atomizing the water (capable of atomizing the water) and spraying it in full cones (explicitly shown in fig. 1, wherein spray heads 34 spray in a cone shape) against said inner wall (explicitly shown in fig. 1) and controlled by flow cocks (spray heads 34), said network of tubes being an integral part of the outer wall of the thermal system to be cooled (explicitly shown in fig. 1), and the system further comprises means for maintaining the water spraying zone delimited by said respective inner and outer walls under negative pressure (col. 7 lines 11-13 via vacuum; and inherent that cooling the bottom wall would yield a negative pressure based on the decreasing temperature of the delimited area) for an evaporation of the cooling water at low temperature (col. 4, lines 6-13, the water will evaporate due to hot spots). It is noted that the recitation "low temperature" is a relative term that is interpreted by the Examiner as being the boiling point of water.

Arthur et al. fail to explicitly teach the limitation of the flow cocks being adjustable.

The general concept of providing adjustable flow cocks falls within the realm of common knowledge as obvious mechanical expedient and is illustrated by Author et al. which teaches that

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the flow of coolant as adjustable via on/off valve 75 (col. 7, lines 18-22), and it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the use of adjustable flow cocks in order to provide localized control of the flow of coolant through the cocks, which have the ability to cool different areas of the furnace due to varied coolant flow, thus increasing cooling efficiency.

Regarding claim 3, Arthur et al. teach the limitation of tubes being installed on the inside surface of the outer wall (part of tubing (water supply manifold) extends inside top wall 11; fig. 1).

Regarding claim 4, Arthur et al. teach the limitation of the tubes being installed on the outside surface of the outer wall (tubes 71, explicitly shown in fig. 1).

Regarding claim 5, Arthur et al. teach the limitation of the cooling water circulating in the network of tubes (71) being stabilized with respect to the mineral content and pH (inherent that the sprayed water pH value is not affected by the contaminant and spraying of the water, and is inherent when water having a stabilized pH is being used).

Regarding claim 6, Arthur et al. teach the limitation of the network of tubes being in a closed circuit (explicitly shown in fig. 1, closed within interior space 23) and the cooling water is regenerated continuously (inherent that the water has to be supplied from a water source).

Regarding claim 7, Arthur et al. teach the limitation of the cooling water contained in the network of tubes is at a temperature less than or equal to 60 degrees Celsius (col. 4 lines 14-20).

Regarding claim 8, Arthur et al. teach the limitation of the zone in which the water is sprayed is maintained under negative pressure by a system (col. 7 lines 9-12, via pump means) that extracts the steam produced (inherent that the steam evaporates off the bottom wall being cooled and pump means is capable of extracting some steam).

Regarding claim 10, Arthur et al. teach the limitation of providing a detecting system composed of contact sensors (thermocouples), which permit continuous monitoring of the wall temperature that is to be regulated (col. 3 lines 66-68, col. 4 lines 1-3, the thermocouples must output temperature information to some sort of system or controller).

Regarding claim 11, Arthur et al. teach the limitation of the cocks providing water flow adjustment (col. 7, lines 18-22, control of coolant flow via on/off valve 75).

Regarding claim 12, Arthur et al. teach the limitations of the cocks having computer-controlled automatic operation (suitable controls, col. 4 lines 1-3).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arthur et al. as applied to claim 1 above, and further in view of Metalmann et al. (US 4,789,991).

Regarding claim 2 and 11, Arthur et al. teach all the limitations of the claimed invention and also teaches the limitation of the adjustable-flow cocks being connected to the tubes (explicitly shown in fig. 1), said cocks terminating in said nozzles (the nozzle portion is provided at the end of spray head 34).

Author et al. fail to explicitly teach that the adjustable flow cocks pass through the tubes.

The general concept of providing adjustable flow cocks pass through tubes falls within the realm of common knowledge as obvious mechanical expedient and is illustrated by Metalmann et al. which teaches a spray tube (29) passing through a header tube (30) (col. 5, lines 14-18 and illustrated in fig. 9), and it would have been obvious to one having ordinary skill in the art at the time the invention was made to include the use of adjustable flow cocks pass through tubes in order to provide spraying of coolant in multiple directions, thus increasing cooling effectiveness.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arthur et al. as applied to claim 8 above, and further in view of Guyer (US 6,053,418).

Regarding claim 9, Arthur et al. teach the limitation of the steam-extracting system being intended to compress said steam (via pump means, col. 7 lines 9-12) and to inject it into a dedicated exchanger unit so that said steam produced then compressed acquires the temperature and pressure suitable for power co-generation (capable of being performed by suitable controls, col. 3 line 66 – col. 4 line 3). Also, the pump means has to have a reservoir where the extracted steam is injected.

Guyer teaches that the concept of the extraction of steam to create power in a power cogeneration system is a well known concept in the art (see abstract lines 1-7).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the cooling system of Arthur et al. to include the extraction of steam to facilitate power co-generation as taught by Guyer in order to conserve the energy for powering the cooling system, thus increasing operating efficiency.

7. Applicant's arguments, see Applicants Arguments/Remarks, filed 5/1/2008, with respect to the 112 second paragraph rejection to claims 1-13 have been fully considered and are persuasive. The 112 second paragraph rejection of claims 1-13 has been withdrawn.

8. Applicant's arguments filed 5/1/2008 with respect to the prior art rejection of claims 1-13 have been fully considered but they are not persuasive. The Applicant submits that ARTHUR taken alone or in view of GUYER does not disclose "maintaining the water-spraying zone delimited by said respective inner and outer walls under negative pressure for an evaporation of the cooling water at low temperature", as indicated in amended claims 1 and 13. The Examiner respectfully disagrees. As disclosed in the previous office action dated 2/1/2008, the vacuum of Arthur et al. that evacuates waste coolant from the interior space 23 can also provide a negative pressure in the interior space. Although Arthur et al. does not explicitly teach that a negative pressure is built up inside the interior space to possibly lower the boiling point of water in order to provide the evaporation of the water, Arthur et al. discloses the structural limitations necessary to perform the method of evaporating the water as claimed. Also, Arthur et al. teaches



that water is evaporated due to hot spots on the furnace as described above. The recitation "at low temperature" can be interpreted by the Examiner as any temperature. Therefore, Arthur et al. reads on the limitations of claims 1 and 13 and the rejection is properly upheld.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AZIM RAHIM whose telephone number is (571) 270-1998. The examiner can normally be reached on Monday - Thursday 7am - 3pm EST and Friday 7am - 9:30am EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Frantz F. Jules/

Supervisory Patent Examiner, Art Unit 3744